

WHAT IS CLAIMED IS:

1. A pharmaceutical composition comprising at least one peptide comprising at least one of the following peptide sequences :

5

WXXXWXXW (SEQ ID No. 1)

where W is tryptophan or an aromatic amino acid and X is any amino acid that is not aromatic or a pharmaceutically acceptable salt of said at least one peptide; and

10 a pharmaceutically acceptable vehicle..

2. The pharmaceutical composition according to Claim 1, wherein said at least one peptide is a variant of SEQ ID No. 1 provided that said variant immunologically reacts with antibodies raised against a CBD-1 peptide or a
15 CBD-2 peptide.

3. The pharmaceutical composition according to Claim 1, wherein the peptide in the pharmaceutical composition comprises at least one of the following amino acid sequences :

20 L-E-Q-I-W-N-N-M-T-W-M-Q-W-D-K (SEQ ID NO. 2) : a CBD-1 peptide sequence;

L-T-P-D-W-N-N-M-T-W-Q-E-W-E-R (SEQ ID NO. 3) : a CBD-2 peptide sequence;

25

C-T-T-A-V-P-W-N-A-S-W-S-N-K-S-L-E-Q-I-W-N-N-M-T-W-M-Q-W-D-K (SEQ ID No. 4) : a CBM-1/TH-1 peptide sequence;

C-H-T-T-V-P-W-P-N-D-S-L-T-P-D-W-N-N-M-T-W-M-Q-W-D-K (SEQ ID No. 5)
30 : a CBM-1/TH-2 peptide sequence;

C-H-T-T-V-P-W-P-N-D-S-L-T-P-D-W-N-N-M-T-W-Q-E-W-E-R (SEQ ID No. 6)
: a CBM-2/TH-2 peptide sequence;

5 C-T-T-A-V-P-W-N-A-S-W-S-N-K-S-L-E-Q-I-W-N-N-M-T-W-Q-E-W-E-R (SEQ
ID No. 7) : a CBM-2/TH-1 peptide sequence;

W-N-N-M-T-W-M-E-W (SEQ ID No. 8); and

W-N-N-M-T-W-Q-E-W (SEQ ID No. 9)

10 or variants of the peptide sequences which comprise amino acid additions,
deletions and/ or substitutions in SEQ ID No. 2 or SEQ ID No. 3 or SEQ ID
No.4 or SEQ ID No. 5 or SEQ ID No. 6 or SEQ ID No. 7 or SEQ ID No. 8 or
SEQ ID No. 9 provided that said variants immunologically reacts with
15 antibodies raised against SEQ ID Nos. 2 to 9.

4. The pharmaceutical composition according to any one of Claims 1 to 3,
wherein said at least one peptide has 90% to 99.9999% sequence homology
to SEQ ID NOS.1 to 9.

20 5 The pharmaceutical composition according to any one of Claims 1 to 4,
wherein said at least one peptide is glycosylated, has introduced therein two
cysteine residues to form a disulfide bridge or is phosphorylated.

25 6. The pharmaceutical composition according to any one of Claims 1 to 5,
wherein said at least one peptide has linker sequences attached to the N- or
C- terminals.

30 7. The pharmaceutical composition according to Claim 6, wherein said linker
sequences are fatty acids.

8. A composition comprising at least one of the peptides according to any one
of Claims 2 to 7.

9. The pharmaceutical composition according to any one of Claims 1 to 7 or the composition of Claim 8, wherein said at least one peptide is an antigen.

10. Use of the pharmaceutical composition according to any one of Claims 1 to 7 or the composition according to Claim 8 for production of a drug.

11. Use of the pharmaceutical composition according to any one of Claims 1 to 7 or the composition according to Claim 8 for production of a vaccine.

12. A vaccine comprising at least one of the peptides according to any one of Claims 1 to 7; and a pharmaceutically acceptable vehicle.

13. The vaccine according to Claim 12, the pharmaceutical compositions according to any one of claims 1 to 7 or the composition of Claim 8, further comprising an adjuvant.

14. The vaccine, the pharmaceutical compositions or the composition according to Claim 13, wherein said adjuvant is selected from the group of: Complete Freund's Adjuvant, Incomplete Freund's Adjuvant, motanide incomplete seppic adjuvant, the Ribí adjuvant system, Titer Max, muramyl peptides, Syntex Adjuvant Formulation, aluminum hydroxide, aluminum phosphate, aluminum salt adjuvants, Gerbu® adjuvants, nitrocellulose absorbed antigen, encapsulated or entrapped antigen, Quil A and QS-21, CpG oligonucleotides and double stranded RNA molecules.

15. The vaccine, the pharmaceutical compositions or the composition according to any one of Claims 1 to 14, wherein said vaccine, pharmaceutical compositions or composition is presented in a multimeric or polyvalent manner.

16. The vaccine, the pharmaceutical compositions, or the composition according to any one of claims 1 to 15, wherein said vaccine, pharmaceutical

compositions or composition is encapsulated with a polymer, liposome or micelle.

5 17. A nucleic acid encoding the peptides of any one of sequences SEQ ID Nos. 1 to 9 and 11 to 18 or a sequence hybridizing under stringent conditions with the sequences thereof.

10 18. Monoclonal antibodies, polyclonal antibodies, oligoclonal antibodies or antibodies with a restricted specificity raised against any of the peptides of any one of Claims 1 to 4.

19. Human monoclonal antibodies reacting with any of the peptides of any one of Claims 1 to 4.

15 20. The monoclonal antibodies, polyclonal antibodies, oligoclonal antibodies or antibodies with a restricted specificity according to Claim 18 or Claim 19 which are neutralizing antibodies.

20 21. A method for detecting the presence of HIV in a biological sample, comprising contacting the biological sample taken from a mammal with an antibody of Claim 18 or Claim 19 under conditions that allow the formation of an immunological complex; and detecting the immunological complex that is formed.

25 22. A kit for detecting HIV comprising at least one antibody of Claim 18 or Claim 19 , reagents necessary for the immunological reaction and reagents necessary for the detection of the immunological complex.

30 23. Use of the antibodies of Claim 18, Claim 19 or Claim 20 for immunotherapy to prevent HIV infection.

24. Use of the peptides according to any one of Claims 1 to 4 or the antibodies according to Claim 18, Claim 19 or Claim 20 to treat or prevent HIV infection.

5 25. A method to measure the presence of neutralizing antibodies in a biological sample from a mammal comprising contacting the biological sample taken with a peptide according to any one of Claims 1 to 4 under conditions that allow the formation of an immunological complex; and detecting the immunological complex that is formed.

10 26. A kit to reduce to practice the method according to Claim 26 comprising at least one peptide according to any one of Claims 1 to 4, reagents necessary for the immunological reaction and reagents necessary for the detection of the immunological complex.

15 27. Use of the peptides according to any one of Claims 1 to 4 in an immunological assay for diagnosis of HIV positive individuals considered as non-progressors (NP) compared to progressors (PR).

20 28. A purified peptide comprising at least one of SEQ ID Nos. 1 to 9 and 11 to 18 or of sequences having 90% to 99.9999% homology to SEQ ID Nos. 1 to 9 and 11 to 18.

29. Use of the purified peptide according to Claim 28 to isolate anti-HIV molecules.

25

30 30. A method of selecting or isolating anti-HIV molecules comprising attaching the peptides of Claim 28 to a solid support; incubating with a caveolin preparation or with the C-20 peptide in the presence of anti-HIV molecules that prevent the interaction of caveolin or the C-20 peptide with said attached antigens; and selecting or isolating said anti-HIV molecules.

31. Use of a complex of caveolin or C-20 peptide bound to a least one purified peptide of Claim 28 to prevent HIV infection.

32. The pharmaceutical composition according to any one of Claims 1 to 7 or
5 the composition according to Claim 8 or the antigen of Claim 9, wherein the at least one peptide or antigen is associated covalently or non-covalently or is in a mixture with a foreign peptide or a foreign antigen.